

SOME SOUTH AFRICAN FRESH WATER COPEPODA

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(With 9 figures in the text)

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INTRODUCTION

The material consisted of 26 tubes from the western Cape Province, 45 tubes from the Jukskei-Crocodile system, 39 tubes from the Vaal River, and 32 tubes from other parts of the Transvaal. The material was collected by Dr. A. D. Harrison and his colleagues.

The collection comprised 9 species of Diaptomidae and 11 species of Cyclopoida. Unidentified Harpacticoida were also present in some of the samples. The following species were identified:

CYCLOPOIDA

1. *Macrocyclops albidus* (Jurine) sub.-sp. *oligolasi* Kiefer
2. *Eucyclops serrulatus* (Fischer)
3. *Eucyclops gibsoni* (Brady)
4. *Tropocyclops prasinus* Fischer
5. *Paracyclops fimbriatus* (Fischer)
6. *Paracyclops finitimus* Kiefer
7. *Acanthocyclops vernalis* (Fischer)
8. *Microcyclops varicans* (Sars)
9. *Mesocyclops leuckarti* (Claus)
10. *Thermocyclops oblongatus* (Sars)
11. *Thermocyclops emini* (Mrázek)

Ann. S. Afr. Mus. **48** (21), 1967: 515-521, 9 figs.

DIAPTOMIDAE

12. *Lovenula barnardi* Sars
13. *Lovenula falcifera* (Lovén)
14. *Paradiaptomus lamellatus* Sars
15. *Metadiaptomus transvaalensis* Methuen
16. *Metadiaptomus capensis* (Sars)
17. *Metadiaptomus colonialis* (Douwe)
18. *Metadiaptomus purcelli* (Sars)
19. *Tropodiaptomus spectabilis* (Kiefer)
20. *Eudiaptomus* sp.

The names used for the Cyclopoida are in accordance with Kiefer's monograph (Kiefer, 1929a). This gives a full synonymy and here we give synonyms only with reference to other works on South African copepods.

Macrocyclops albidus (Jurine) sub.-sp. *oligolasius* Kiefer

The species *M. albidus* is a cosmopolitan one but specimens in Africa south of the Sahara if examined sufficiently closely are usually found to belong to the subspecies *oligolasius* which was first described (Kiefer, 1928a) from the Linjanti River where it flows into the Zambezi. Hutchinson *et al.* (1932) record it from the south-eastern Transvaal. Sars (1927) did not find any representatives of the genus *Macrocyclops* in his survey of the Entomostraca of the Cape Province but two of the present samples from the western Cape Province contained *M. albidus oligolasius*, both from a vlei at Betty's Bay in brown and acid water. It was also present in the Vaal River, the Olifants Vlei near Johannesburg, the Klein Jukskei River and from the Great Usutu River in the eastern Transvaal.

Eucyclops serrulatus (S. Fischer)

This cosmopolitan species was found in all regions sampled in the present survey. It is rather surprising that so common a species was not found in the Cape Province by Sars (1927). Several of the present samples contained it. Hutchinson *et al.* (1932) record it from south-eastern Transvaal and it was present in many of the present samples from the Transvaal.

Eucyclops gibsoni (Brady)

Cyclops gibsoni Brady 1904: 123, pl. 6, figs. 1-10.

Cyclops longistylis Brady 1910: 242. (Nigeria.)

Afrocylops gibsoni (Brady), Sars 1927: 121, pl. 13, figs. 1-18.

Eucyclops gibsoni (Brady), Hutchinson *et al.* 1932.

This is a species widely distributed in Africa south of the Sahara.

Found in the western Cape Province in the Krom River, Stellenbosch, and under the Blouberg road bridge, Milnerton, and in the Transvaal at the Amato Dam, Benoni, and at the Pretoria sewage works.

Brady's type of *longistylis* from Nigeria is in the BM(NH) on a slide and appears to be this species as Sars suggested.

Tropocyclops prasinus Fischer

Leptocyclops prasinus (Fischer) Sars 1927: 119, pl. 12, figs. 11-20.

Eucyclops prasinus (Fischer) Hutchinson *et al.* 1932.

This is a very widely distributed probably cosmopolitan species, but was represented in the present collections only by a single male from the Crocodile-Jukskei system. It is a very small species and may have passed through the nets. It is recorded from the Cape (Sars, 1927) and the Transvaal (Hutchinson *et al.*, 1932).

Paracyclops fimbriatus (Fischer)

This species is reported from the whole of the Palaearctic and Nearctic regions and most parts of Africa. It was found in four of the samples from the Vaal River, two of which contained the related form *Paracyclops finilimus* as well.

Paracyclops finilimus Kiefer

Platycyclops poppei (non Rehberg) Sars 1927: 127, pl. 14, figs. 5-17.

This species was first described from Morocco (Kiefer, 1928b: 99) and has been found in New Zealand. Sars had already recorded it under the synonym given above from the Cape Peninsula.

It was found in three samples from the Cape Province: the Krom River at Stellenbosch and the Berg River and in nineteen from the Transvaal: at Benoni, in the Crocodile-Jukskei System, in the Klipspruit near Johannesburg, in the oxidation pond of the Pretoria sewage works and in the Vaal.

Acanthocyclops vernalis (Fischer)

This species is widely distributed in the Northern Hemisphere and has been recorded from South America and Kerguelen. In the present collection it is represented by a single adult female from the Berg River.

Microcyclops varicans (Sars)

Owing to uncertainties of identification the precise distribution of this species is not known; but there are records from all principal land masses. I know of no record for South Africa south of the Vaal River; but Hutchinson *et al.* (1932) record it from the Transvaal. It was present in three tubes from the Crocodile-Jukskei System in marginal vegetation and from two stations on the Vaal River.

Mesocyclops leuckartii (Claus)

This cosmopolitan species was found in twenty-four of the samples: from the western Cape Province, from the Vaal River and from the Transvaal.

Thermocyclops oblongatus (Sars)

(Figs. 1-9)

Mesocyclops oblongatus Sars 1927: 114, pl. 11, figs. 1-15.

(*Thermocyclops*) *infrequens* Kiefer 1929b: 315, fig. 10.

Sars (1927) described *T. oblongatus* from the Cape Province. Unfortunately his figures are not very accurate, in particular showing a peculiarly shaped

receptaculum and a fifth leg with the outer terminal seta less than half the length of the inner. Kiefer (1929b) described *T. infrequens* and many specimens of the present collection from both the Transvaal and the Cape agree with Kiefer's description and figures, but none with Sars. We have examined Sars's original material and find that the receptaculum and fifth leg are the same as in Kiefer's species and as these were the only features by which the two species were thought to be distinguishable we conclude that *oblongatus* and *infrequens* are two names for a single species. There are two tubes of Sars's material, one which had at some time been allowed to dry up was from a small pond at Salt River, collected by Dr. Purcell and referred to in Sars's paper, and the other of specimens in good condition from an unspecified locality. Both tubes appeared to contain the same species and figs. 1-4 are from a specimen from the second tube. Figs. 5-9 are of corresponding parts of specimens from the Transvaal in the present collection. The species is very close to *T. schuurmanae* Kiefer, the main difference being that the rounded prominence on the lamella of leg 4 (figs. 2 and 6) are larger, closer together and bear more spinules. Kiefer's original specimens of *T. schuurmanae* were from the Transvaal (Kiefer, 1928a: 15) and Hutchinson *et al.* (1932) also record it from several Transvaal localities and from a Cape Vlei. However, apart from a few *T. emini*, all the *Thermocyclops* in the present collection are *T. oblongatus*, not *T. schuurmanae*. The localities are: the Zeekoe Vlei on the Cape Flats, various dams at Benoni, Transvaal, five stations in the Crocodile-Juikskei System and the Apies River, Pretoria.

Thermocyclops emini (Mrázek)

Originally found in East Africa (Mrázek, 1896: 4; Sars, 1909: 50) it has since been found in the Sudan and in Egypt (Gurney, 1911: 32) and in the Transvaal and Portuguese East Africa (Hutchinson *et al.*, 1932). The present samples were both from the Vaal Barrage.

Lovenula barnardi Sars

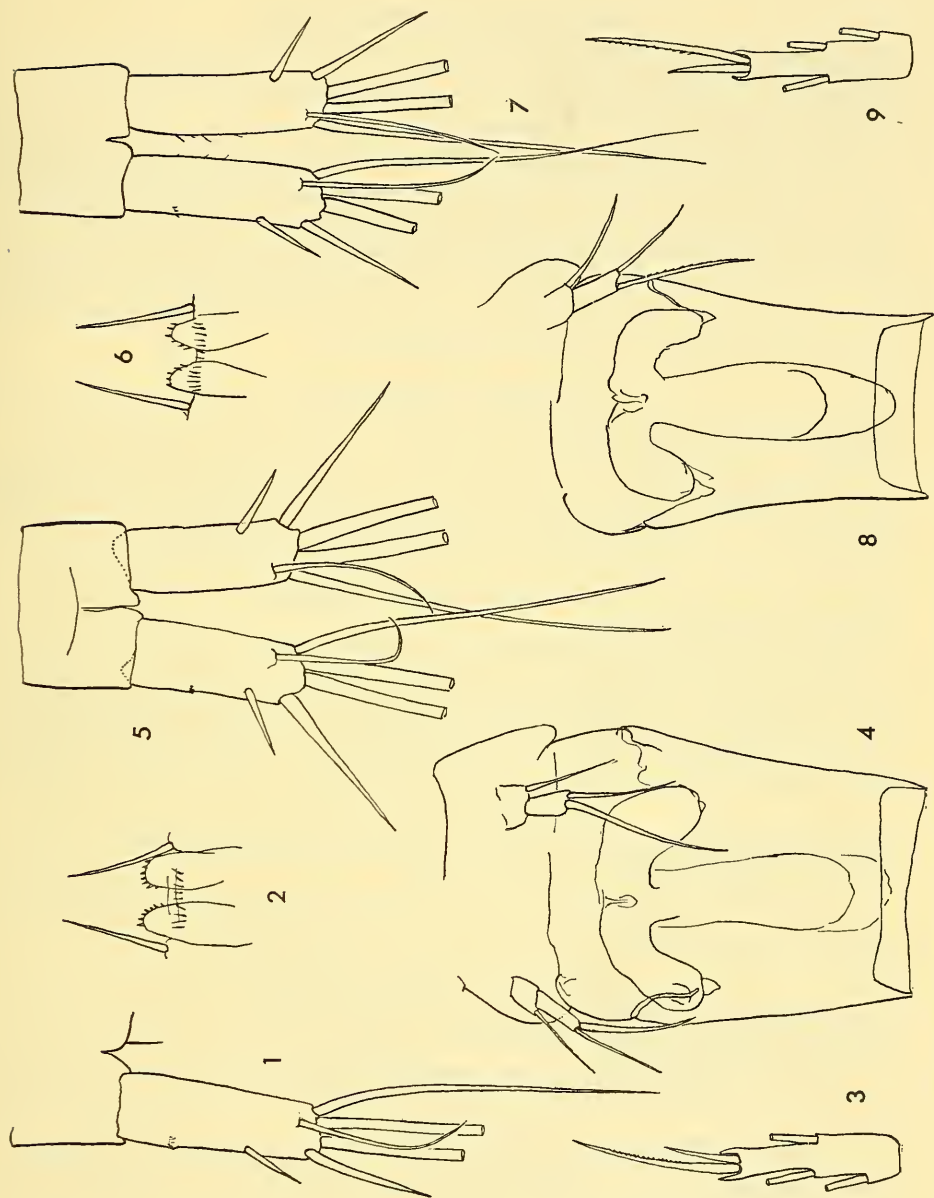
Originally described from Ovamboland, South West Africa (Sars, 1927: 92) this species was present in a number of the samples collected along the Vaal River.

Lovenula falcifera (Lovén)

First described from Natal and later found near Cape Town (Sars, 1927: 86) and in a number of places in the Transvaal (Hutchinson *et al.*, 1932). This species was found only in the Cape Province in the present collections: in temporary waters on the Cape Flats, Berg River localities and the Riet Vlei, Milnerton.

Paradiaptomus lamellatus Sars

The type locality is Knysna, Cape Province (Sars, 1895: 46) and this species is recorded by Sars (1927: 94) also from near Cape Town. Brady (1907: 183) records it from Natal and Rühe (1914: 27) from the Cape. The species was found in three of the present samples, all from the Cape.



Figs. 1-9. *Thermocyclops oblongatus* (Sars). Figs 1-4, Type material from the Cape. Figs. 5-9, Transvaal material. Figs. 1, 5, 7, furcal rami. Figs. 2, 6, uniting lamella of fourth legs. Figs. 3, 9, terminal segment of endopod of fourth leg. Figs. 4, 8, last thoracic segment of genital segment showing receptaculum seminis and fifth legs.

Metadiaptomus transvaalensis Methuen

Metadiaptomus transvaalensis Methuen 1910: 160, pl. 16, figs. 46a-c, pls. 17-18.

Diaptomus meridianus Douwe 1912: 24.

Paradiaptomus transvaalensis (Methuen) Hutchinson *et al.* 1932.

Diaptomus rigidus Sars 1927: 101, pl. 8, figs. 13-18.

This is the type species of the genus and was first described (Methuen, 1910) from Lake Chrissie and other parts in the eastern Transvaal. Hutchinson *et al.* (1932) also record it from this area and other parts of the Transvaal. Van Douwe's 1912 specimens from Great Nama Land are probably the same species and the present samples were mostly from the Vaal River, and also from one station in the western Cape Province at Piquetberg on the Berg River. Only two battered females were present in the last sample.

Metadiaptomus capensis (Sars)

Diaptomus capensis Sars 1907, R  he 1914: 26, fig. 8a, b. Sars 1927: 98, pl. 8, figs. 1-12.

Paradiaptomus capensis (Sars) Hutchinson *et al.* 1932.

This species as far as I know has only been recorded from the Cape Province, it was present in three of the samples, the Zeekoe Vlei and a temporary pool on the Cape Flats and Sirkel's Vlei near Cape Point.

Metadiaptomus colonialis (Douwe)

Diaptomus colonialis Douwe, 1914.

Paradiaptomus colonialis (Douwe) Hutchinson *et al.* 1932.

The specimens described by Van Douwe were from South West Africa and those collected by Hutchinson *et al.*, from various parts of the Transvaal. Eight of the present samples were from inside the Transvaal and three from its southern border.

Metadiaptomus purcelli (Sars)

Diaptomus purcelli Sars 1907: 12, pl. 2, figs. 3-10. Sars 1927: 103, pl. 9, figs. 1-8.

Paradiaptomus purcelli (Sars) Hutchinson *et al.* 1932.

All records of this species seem to be from the south-western Cape Province and it is characteristic of temporary pools on the Cape Flats.

Tropodiaptomus spectabilis (Kiefer)

Diaptomus spectabilis Kiefer 1929b: 311, figs. 5, 6. Hutchinson *et al.* 1932.

Tropodiaptomus spectabilis (Kiefer) Kiefer 1932.

This is a Transvaal species and was collected from two Transvaal localities.

Eudiaptomus sp.

Three females and one male of an undetermined species of *Eudiaptomus* were present in a sample from the Hartebeespoort Dam.

SUMMARY

Eleven species of Cyclopoida and eight species of Diaptomidae are recorded from inland waters of the Cape Province and Transvaal. Figures of *Thermocyclops oblongatus* (Sars) are given and it is shown that *T. infrequens* Kiefer is a synonym of this species.

ACKNOWLEDGEMENTS

We are indebted to Dr. A. D. Harrison and the National Institute for Water Research of the South African Council for Scientific and Industrial Research for the opportunity of examining this material. We are grateful to Dr. J. R. Grindley for letting us examine specimens described by G. O. Sars in the collections of the South African Museum.

The Trustees of the South African Museum acknowledge gratefully the receipt of a grant from the Council for Scientific and Industrial Research towards the cost of publication.

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